

Remarks

The outstanding Official Action and art cited therein have been carefully reviewed and this application has been amended as above.

Several incorrect numerals in the specification have been corrected. These are at page 10, line 11 where a reference to Fig. 8 should have been to Fig. 7 and at page 11, line 19 where the multiplier 172 should have been multiplier 171 consistent with Fig. 6. Also Fig. 8 has been corrected to show the multiplier as 171 rather than 172 (consistent with Fig. 6 and the specification as now corrected) and to show the phase-locked loops as LM565, consistent with the specification and the manufacturer's number.

The Official Draftsperson's approval of the prior drawing corrections is noted with appreciation.

Also appreciated was examiner Holmes' helpful telephone discussion of the question of whether an Information Disclosure Statement was needed to make of record references cited in the Search Report and Written Opinion in the corresponding PCT application. An Information Disclosure Statement citing these references as well as three of four references referred to at page 7 of the specification is enclosed. The remaining Wiley text referred to at page 7 of the specification has not been supplied as it is general in nature and not believed material to the content of the claims now present in this application.

Previously presented claims 5 - 10 are here cancelled without prejudice.

The examiner's rejections of claims 11, 12 and 15 - 25 are respectfully traversed.

Regarding claim 11, applicants respectfully disagree with the examiner's comments that the cited "Burger" patent teaches "An oscillatory neurocomputer" or "a medium [that interconnects] the source of rhythmic forcing input to each oscillating element ... [wherein] the oscillating frequency f_1 of at least one of the oscillating elements differing from the oscillating frequency f_2

of at least one other of the oscillating elements" The Burger patent is not at all related to a neurocomputer with these characteristics, and claim 11 is clearly patentable over Burger and all art of record.

Claims 12 and 15 - 18 are dependent claims that include by their dependency the patentable subject matter of parent claim 11. These claims are patentable by virtue of their dependency and by virtue of further novel and unobvious features they recite. As to the rejections of claims 12 and 15 - 18 expressed in the Official Action, again the quotations made are not indicative of the presence of the claim features in the Burger patent.

Original claim 19 has been retained. Applicants respectfully take exception to the rejection in the outstanding Official Action. The examiner's comments in the Official Action do not say what exactly the Woodall reference teaches that amounts to the terms of the claims. This is true, for example, of the "array of oscillators" of "different frequencies," or the "common conducting medium," for example. The quoted portions of Woodall are unrelated to the claim for provisions to which they are asserted. Claim 19 is clearly patentable over the art of record and should be allowed at this time.

Claims 20 and 21 are dependent. These are patentable on the same grounds as parent claim 19 based on their dependency. They are further patentable based on the further subject matter that they express. Again it is respectfully urged that the Woodall patent in the quoted sections in the Official Action do not relate to provisions like those of the claims.

Method claims 22 - 24 set forth very clearly the inventive process of the present invention. The Official Action's quoted portions of Woodall are, once again, unrelated to the terms of these claims. For example, Woodall does not teach "enabling communication of a characteristic between" processing elements oscillating at first and second frequencies. Nor does it each operably coupling the processing elements to a medium to which a rhythmic input is applied. The quotes of the Official Action do not support the rejection over Woodall in this respect and the Official Action does not state what is believed in Woodall to correspond to the steps of method claim 22.

Dependent claim 23 is patentable based on its dependency and as well because the

Woodall patent does not teach causing the rhythmic input to oscillate at a third frequency that is substantially equal to the difference between the first and second frequencies (of the processing elements).

Claim 24 calls for operably coupling each of a plurality of n elements to a medium by no more than n connectors and applying the rhythmic input to the medium to enable the communication between processing elements. Woodall does not teach or suggest this. Again the quotes from Woodall do not support the stated rejection.

Without the application of relevant prior art, claims 22 - 24 are also very clearly patentable over all of the art of record.

Independent claim 25 is likewise patentable over the Woodall reference cited against it and all other art of record. Again the quoted portions of Woodall do not teach or suggest the provisions of the claim for which they are cited. This claim, it is respectfully urged, recites subject matter clearly patentable over Woodall and should now be allowed. Woodall, it is respectfully urged, does not teach or suggest n active elements that are phase-locked loops having no more than n connections to a medium for application of an input signal. This claim should be allowed.

New claims 26 - 55 have been submitted.

New claims 26 - 41 are apparatus claims. Independent claim 26 sets forth a neurocomputer in which a common medium connects inputs of n processing elements with a rhythmic external forcing input, the processing elements having oscillators of differing frequencies and the neurocomputer requiring just n connections from the common medium to the processing elements. The prior art of record does not teach or suggest such a neurocomputer and hence claim 26 is urged to be clearly patentable over all prior art of record, including that cited by the examiner and that from the PCT Search Report and Written Opinion as set forth in the accompanying IDS.

Claims 27 - 41 are dependent claims that incorporate by their dependencies the novel and unobvious features of claim 26. By this and by further novel and unobvious features set forth in claims 27 - 40, these claims are patentable over the art of record as well.

Claims 42 - 44 are apparatus claims setting forth the applicants' novel and unobvious

neurocomputer in "means plus function" terms thus invoking 35 U.S.C. § 112, paragraph 6. Claim 42 calls for a neurocomputer having (a) "a multiple number n of means for processing, including ... means for oscillating at different frequencies." The claim further calls for (b) "means for producing a rhythmic input," and (c) "a single means connected with an output of the means for providing the rhythmic input for providing a common connection ... to the n means for receiving inputs to the means for processing." This combination of elements is not taught or suggested in the art of record. The claim further calls for "the means for producing a rhythmic input comprising means for producing inputs having frequency components that are the differences of frequencies of the means for oscillating." By reason of this, as well, such a neurocomputer is unlike any described or discussed in the examiner's and IDS' cited art. It is urged that the thus-claimed neurocomputer is both novel and unobvious and claim 42 should be allowed at this time.

Claims 43 and 44 include by their dependencies the patentable subject matter of parent claim 41 as well as other novel and unobvious content. These too should now be found allowable.

Claims 45 - 55 are drawn to applicants' novel and unobvious method of neurocomputing. Much like claim 26, independent method claim 45 calls for providing n processing units with oscillators having different frequencies, providing a common medium, coupling the common medium to the n inputs of the processing elements and applying a rhythmic external forcing input to the common medium. The claim also calls for "effecting communication between at least two of the n processing elements by providing ... a frequency spectrum with a frequency equal to the difference between the frequencies of the ... two oscillators." This is unlike the prior art of the examiner's outstanding Official Action and that of the enclosed IDS. The method is both novel and unobvious. It is therefore respectfully urged that claim 45 is patentable and should be allowed at this time.

Dependent claims 46 - 55 include by their dependencies the patentable features of parent claim 45. For this reason, as well as for additional patentable content contained in these dependent claims, claims 46 - 55 also should be allowed at this time.

Favorable early reconsideration of this application at an early date is respectfully requested.

Should the examiner in charge of this application have questions or suggestions for the undersigned attorneys for applicants, he is invited to call or email the undersigned at the telephone number or email address given below.

Respectfully submitted,

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